

**ABSTRACT**

A reactor for carrying out endothermic catalytic reactions is provided. The reactor features a metallic ingot with at least one tubular reaction passage extending through the ingot. The reaction passage is adapted to hold a catalyst for endothermic conversion of a feedstock. Provided are inlet passages for introduction of the feedstock into the reaction passage, and outlet passages for withdrawing reacted feedstock. The inlet and outlet passages are provided within the ingot. An electrical heater supplies to the ingot and the reaction passage the heat for the catalytic endothermic conversion of the feedstock.